

Reverse Total Shoulder Arthroplasty with Latissimus dorsi tendon transfer Protocol:

4 Weeks to 6 Weeks:

- Patient typically begins formal outpatient physical therapy.
- Begin sub-maximal pain-free deltoid isometrics in scapular plane (avoid shoulder extension when isolating posterior deltoid.)
- Begin shoulder PROM:
 - o Forward flexion and elevation in the scapular plane in supine to 120 degrees as Tolerated.
 - o NO IR PROM at this time.
 - o ER in scapular plane to tolerance, respecting soft tissue constraints (typically 30-40 degrees of ER).
- Continue frequent cryotherapy.

Criteria for progression to the next phase (Phase II):

- Tolerates shoulder PROM and deltoid isometrics; and AROM program for elbow, wrist, and hand.
- Patient demonstrates the ability to isometrically activate all components of the deltoid and periscapular musculature in the scapular plane.

Phase II –Active Range of Motion / Early Strengthening Phase (Week 6 to 12):

Phase II ADL's

- Independent dressing and showering below 90deg shoulder elevation and with upper extremity in front of patient.
- Use caution to prevent jerking motions when don/doffing clothing.
- Use of operative arm to eat/drink and perform light activities.
- No lifting of objects more than 2-3 pounds with operative upper

Goals:

- Continue progression of PROM (full PROM is not expected).
- Gradually restore AROM.
- Facilitate latissimus dorsi to function as a humeral head stabilizer and external rotator.
- Control pain and inflammation.
- Allow continued healing of soft tissue / do not overstress healing tissue.
- Re-establish dynamic shoulder and scapular stability.

Precautions:

- Patient progresses out of gunslinger into and ER sling at post-op week # 6. Goal is to be weaned out of sling by post-op week # 8 if adequate shoulder motor control (i.e. negative ER lag sign and the ability to actively elevate shoulder at least 50 degrees without pain.)
- No forced shoulder ROM
- Restrict lifting of objects to no heavier than a coffee cup.
- No supporting of body weight by involved upper extremity.

Week 6 to Week 8:

- Continue with PROM program.
 - At 6 weeks post op start PROM IR to tolerance (not to exceed 30 degrees) in the scapular plane.
- Begin Active assisted range of motion (AAROM) and AROM (Begin in supine and sidelying then progress to antigravity positions as appropriate)
- Forward Flexion (lawn chair progression) *
- Forward elevation *
- External Rotation *
- Internal Rotation

***Use of a biofeedback is helpful for visual and auditory feedback to reeducate the Latissimus muscle to function as an external rotator.**

Neuromuscular electrical stimulation (NMES) is useful to assist in muscular recruitment as well.

- Initiate gentle scapulothoracic rhythmic stabilization and alternating isometrics in supine as appropriate. Begin gentle periscapular and deltoid sub-maximal pain free isotonic strengthening exercises, typically toward the end of the 8th week.
 - Progress strengthening of elbow, wrist, and hand.
 - Gentle glenohumeral and scapulothoracic joint mobilizations as indicated (Grade I and II).
 - Continue use of cryotherapy as needed.
 - Patient may begin to use hand of operative extremity for feeding and light activities of daily living including dressing, washing.

Week 9 to Week 12:

- Continue with above exercises and functional activity progression.
- Begin AROM supine forward flexion and elevation in the plane of the scapula with light weights (1-3lbs. or .5-1.4 kg) at varying degrees of trunk elevation as appropriate. (i.e. supine lawn chair progression with progression to sitting/standing).
- Progress to gentle glenohumeral IR and ER isometric and isotonic strengthening exercises in sidelying position with light weight (1-3lbs or .5-1.4kg) and/or with light resistance resistive bands or sport cords.

Criteria for progression to the next phase (Phase III):

- Improving function of shoulder.
- Patient demonstrates the ability to isotonicly activate all components of the deltoid and periscapular musculature and is gaining strength.

Phase III – Moderate strengthening (Week 12 +)

Phase III ADL's

- Independent with all ADLS including dressing, showering, eating
- Return to light to moderate activities below shoulder height as tolerated
- No lifting of objects more than 4 pounds with operative extremity.

Goals:

- Enhance functional use of operative extremity and advance functional activities.
- Enhance shoulder mechanics, muscular strength and endurance.

Precautions:

- No lifting of objects heavier than 2.7 kg (6 lbs) with the operative upper extremity below chest height
- No sudden lifting or pushing activities.

Week 12 to Week 16:

- Continue with the previous program as indicated.
- Progress to gentle resisted flexion, elevation in standing as appropriate.

Phase IV – Continued Home Program (Typically 4 + months postop):

Phase IV ADLS

- No Lifting of objects more than 5 lbs with operative extremity and 10 lbs with both extremities.
- Progression of light to moderate activities with operative upper extremity within available AROM and with upper extremity in front of body.

Typically the patient is on a home exercise program at this stage to be performed 3-4 times per week with the focus on:

- Continued strength gains
- Continued progression toward a return to functional and recreational activities within limits as identified by progress made during rehabilitation and outlined by surgeon and physical therapist.

Criteria for discharge from skilled therapy:

- Patient is able to maintain pain free shoulder AROM demonstrating proper shoulder mechanics. (Typically 90 – 120 degrees of elevation with functional ER of up to 10-15 degrees.)
- Typically able to complete light household and work activities.

<https://bostonshoulderinstitute.com/wp-content/uploads/2014/07/Shoulder-Reverse-TSA-with-Latissimus-Dorsi-transfer-protocol-v32.pdf>